



MALAYSIAN SOCIETY OF SOIL SCIENCE (MSSS)

NEWSLETTER

Apr 2015 Issue 1

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FROM THE PRESIDENT'S DESK

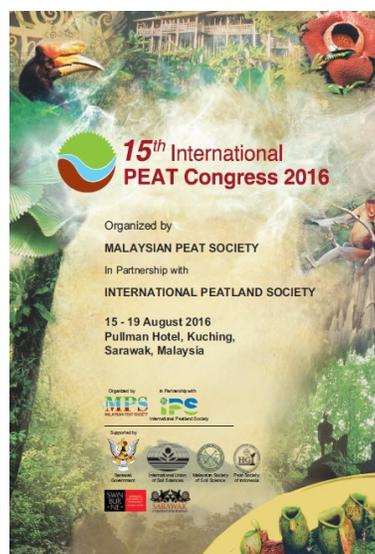
International Year 2015 has kicked off with an array of events planned and inaugurated. IUSS has highlighted many world events pertaining to every important aspect of soil resources while at Asian level two significant events were accorded. The first one is Asian Soil Partnership (ASP) Consultation Workshop held in Bangkok on 13-15 May 2015 and another event, the International Conference of East and Southeast Asia Federation of Soil Science Societies (ESAFS2015) Congress which



is scheduled in Nanjing from 18-21 September 2015. At national level, MSSS in collaboration with UPM has successfully concluded the Soil Science Conference of Malaysia 2015 in Putrajaya on 7-9 April 2015. The upcoming events in line for 2015 are Soil Familiarization Tour, Soil Run, Soil Judging Contest and Essay Competition for school children. Part of these activities will be organized in partnership with the Department of Agriculture. I look forward for great and active participation from MSSS members and the public. *Together we celebrate the International Year of Soils 2015!*



CALL FOR PAPERS -15th International Peat Congress 2016



IUSS and MSSS will support the organizing of **International Peat Congress 2016** which will be held on **15-19 August 2016** in Kuching, Sarawak

Conference Secretariat of The 15th International Peat Congress, 2016

Tropical Peat Research Laboratory Unit
(Chief Minister's Department)

Lot 6035, Kuching-Kota Samarahan Expressway
94300 Kota Samarahan, Sarawak, Malaysia

Phone: +6082 662491 Fax: +6082 662497

Kindly spend some time by visiting the website
<http://www.ipc2016.com/> for further information.

Changes in Soil Organic Carbon Stock under Oil Palm Cultivation



The interest in Soil Organic Carbon (SOC) has risen significantly in the science community due to the potential of climate change mitigation through soil carbon sequestration. The C stored in soil is estimated to be four times greater than the total available in living vegetation. Soil organic carbon also plays an important role in soil fertility maintenance through enhancing cation exchange capacity, improving soil aggregation and water retention, and supporting soil biological activities. Nevertheless, C sequestered in soils, particularly mineral soils was not given enough attention. Perhaps such situation could be attributed to the lack of long term data to demonstrate any major changes in SOC and thus it was assumed that there is no

change in SOC in mineral soils. As a result, the dynamics of SOC under the oil palm plantation has not been adequately evaluated, particularly in relation to the C status of soils under different ages of oil palms. A research entitled “Soil Organic Carbon Stocks of Oil Palm Cultivation on a Tropical Mineral Soil” has been carried out to evaluate the effects of oil palm cultivation on the SOC status, by comparing the organic C contents of soils across different palm ages (1, 5, 10, 17, 27 years after planting (YAP)), operational zones (Weeded Circle (WC), Frond Heap (FH), Avenue (Ave)) and soil depths (0-20 cm, 20-40 cm and 40-60 cm). A replanting area and an adjacent secondary forest were also selected for sampling in order to evaluate the changes of SOC during replanting and as a comparison to different palm ages. Research findings indicated that SOC content decreased with increased soil depth and operational zone of FH exhibited the highest SOC stocks as compared to the WC and Ave areas at 0-20 cm soil depth. However, with the consideration of percentage area of operational zones in oil palm field, Ave exhibited the highest SOC stock followed by FH and WC. The SOC stocks of the operational zones from each oil palm study sites were then summed up as the total SOC in 1 ha. The SOC stock of 1, 5, 10 and 27 YAP of oil palm plantations, replanting area and secondary forest at 0-20 and 20-40 cm did not exert any statistical differences. The SOC stock of 17 YAP was significantly lowest across three soil depths due to higher sand content and lower clay content as compared to the other study sites. This finding indicated the essential role of soil texture other than the effects of human activities on SOC stock in oil palm plantations. Detailed study of soil texture should be carried out in order to quantify the effect of soil texture on SOC stock in oil palm plantations. In conclusion, oil palm plantations with proper management would exhibit SOC stock within the range of SOC stock of secondary forest. *Photo and text by Miss Law Mei Ching, Malaysian Palm Oil Board, Bangi.*



2015

International Year of Soils

**“The health of soil, plant, animal and man is one and indivisible.”
- Soil Association founder, Lady Eve Balfour**

Water Scarcity and Postharvest Quality of Various Fruit Crops

Photo and Text: Dr. Wan Zaliha Wan Sembok, Universiti Malaysia Terengganu (UMT)

Water scarcity and climatic change throughout the world increase concern to use water wisely mainly in the agriculture industry. Irrigation is a major agricultural activity and it accounts for over 85% of water usage worldwide. Water plays a major role in all plant physiological processes. Approximately 80 to 95% of water is allocated in the biomass of non-woody plant tissues and over 50% of the fresh weight of woody plants. The increasing demand of water in urban area is compelling the diversion of water use from agriculture industry to municipalities. Thus, there is an urgent need to identify and adopt effective irrigation management strategies in improving fruit production and also its quality in the agriculture sector. In addition, the amount of water irrigated must be determined precisely so that no water wastage will occur without affecting growth, yield and postharvest performance of various fruit crops. Many internal and external factors such as genotype, intensity and types of light, orchard temperature, crop load and agronomic factors, including agrochemical application, irrigation, pruning and fertilization affect the physiology and yield of plants. However, **the effects of water deficit on postharvest quality of fruits and its growth development is still scarce.** Water deficit techniques such as regulated deficit (RDI), withholding irrigation (WHI) and partial root zone drying (PRD) have been widely implemented in various countries, mainly in improving water use efficiency and growth performance of various crops including peaches (*Prunus persica* L.), European (*Pyrus communis* L.) and Asian pears (*Pyrus serotina* Rehd.), French prunes (*Prunus domestica* L.), various plum and apple cultivars and also roselle (*Hibiscus sabdariffa* L.). Deficit irrigation (DI) is defined as a system of managing soil water supply to impose periods of pre-determined plant or soil water-deficit that can result in some economic benefits. DI is designed to reduce or control vegetative growth and at the same time optimizing fruit size, fruitfulness and fruit quality. Regulated deficit irrigation (RDI) is one of the deficit irrigation (DI) methods together with partial rootzone drying (PRD) and withholding irrigation (WHI). These irrigation approaches led to less nutrients and biocides losses to underground water and also efficient water use. RDI was first introduced in Australia for controlling vigour in high-density plantings of 'Golden Queen' peaches and 'Bartlett' pears. PRD requires the frequent irrigation of approximately half of the root system while the other half is left to dry. After a certain period of time the 'wet' and 'dry' zones are alternated, allowing the former 'wet' zone to dry while the 'dry' zone is irrigated. PRD irrigation can start when normal irrigation commences and depending on the type of soil and climatic conditions, the alternation of 'wet' and 'dry' zones would typically occur in a ten to fifteen day cycle. By letting the crop to water stress, this will trigger the root-to-shoot chemical signal by secreting abscisic acid (ABA) which plays an important role in adapting crops to stresses. Secretion of ABA will then trigger the closing of stomata to reduce transpiration, stimulate root growth and apical dominance. Hence, it is believed that the PRD is able to increase fruit quality. Besides, the PRD has also proven its ability to save water by optimizing water use efficiency.



BOOK REVIEW

Title: Rubber Plantation: Soil Management & Nutritional Requirement

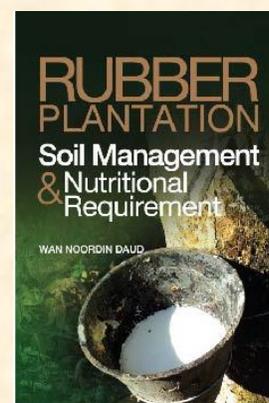
Publisher: UPM Press

Author: Wan Noordin Daud ISBN: 978-967-344-323-9

Dr. Wan Noordin Wan Daud has served more than 30 years in the Rubber Research Institute of Malaysia and currently he is attached as an Associate Professor in the Department of Agriculture, UPM. His book provides vital information on rubber which is the second most important plantation crop after oil palm in Malaysia. This book addresses the soil classifications, nutritional requirements and fertilizer recommendations related to rubber which are deemed beneficial for students and planters in the plantation sector and agronomy. The book covers the history of rubber, soil series identification and soil taxonomy, soil capability index, agro-management practices, nutrient uptake and deficiencies, nutrient critical values, assessment and fertilizer recommendations. Dr. Wan Noordin Wan Daud is currently a MSSS fellow has authored other books including 'Recent Advances in Crop Science Vol 1' and 'Soil Management for Food and Fruit Crop Production'.



Assoc. Prof. Dr. Wan Noordin Wan Daud



SOIL SCIENCE CONFERENCE 2015

Photos and text by Dr. Noraini Jaafar

In recognition of the International Year of Soils, the Soil Science Conference of Malaysia 2015 (SOILS 2015) was successfully hosted by Universiti Putra Malaysia (UPM) and Malaysian Society of Soil Science (MSSS) with a total of 162 participants, attracting delegates from Australia, Bangladesh, Sri Lanka and Mauritius, which reflected the interest and impact of this annual event to the local and international audiences. SOILS 2015 started with a pre-conference Biochar Malaysia Workshop 2015 which was held on 6th of April 2015 at the Faculty of Agriculture, UPM, followed by the SOILS 2015 conference from 7 - 9th April 2015. The conference added several significant insights pertaining to soils in conjunction with 2015 International Year of Soils. SOILS 2015 emphasized on 'Soil Security for Sustainable Food Production', in which soil security is a new concept concerning the maintenance and improvement of the global soil resource. In line with the conference theme, the pre-conference workshop, jointly organized by Biochar Malaysia Association (BMA), UPM, MSSS, MARDI and MPOB aimed to improve soil quality including contaminated soil recovery by focusing on the biochar production and utilization progress in Malaysia as a practical method to reduce carbon footprint through carbon sequestration in soil. Bringing together soils experts from various organisations for this two days conference, SOILS 2015 enjoyed the support of major companies, corporations and development agencies. Y. Bhg. Vice Chancellor, Universiti Putra Malaysia (UPM), represented by the Dean of the Faculty of Agriculture, officiated the SOILS 2015 conference. The conferment of MSSS Honorary Membership and MSSS Fellow Awards, besides other awards, and the launching of 'MSSS Publications CD' (collection of proceedings from national and international conferences, workshops and seminars by MSSS since 1973) added significant impacts to the opening of SOILS 2015. Many prominent speakers graced the event, delivering interesting topics that provided a good overview of the breadth and depth of soil science. **Dr. Damien Field** from University of Sydney delivered an interesting topic on "Soil Security: Addressing the Challenges of Food Security". Pre-recorded video on "Benefits of Soil Security" by **Prof. Rattan Lal** from Ohio State University emphasized the SOILS 2015 conference theme and was a special element in the conference programme. Presentation topics include soil water management, land use, sustainable ecosystem management, soil carbon, nutrient management on rice, soil organic matter and soil microbiology. A one-minute poster presentation session by each poster presenters was also included in the programme. The highlight of the second day of SOILS 2015 was the Forum on "Management of Flood Affected Soils" chaired by Prof. Dr. Mohd Khanif Yusop with another three panelists, which was perhaps the most engaging programme of the conference. SOILS 2015 also helped to support intra and inter-collaboration of soil scientist across multi-disciplinary and multisectoral linkages through the conference, conference dinner, forum and tour. Tour on soil profiles (Munchong, Bungor, Malacca series) at UPM was informative with briefing on soil profiles by Mr. As'ari Hassan (DOA), before participants enjoyed and learned about natural forest, herbs and soils in Sultan Idris Shah Forest Education Centre (SISFEC), Ayer Hitam Forest Reserve, Puchong. This opportunity during the conference tour has brought new prospects for soil analysis and description at Ayer Hitam Forest Reserve and potential future collaborations with SISFEC on forest soils. Sincere gratitude goes to all the committee members, organisers, contributors, sponsors, collaborators and exhibitors on the successful pre-conference workshop, SOILS 2015 conference, dinner and conference tour.

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." - Aldo Leopold, 1949

SOILS 2015 GALLERY



SOILS 2015 Delegates, 7-9 April 2015



Keynote speech by Dr. Damien Field



Arrival of UPM Vice Chancellor



Presentation of token to the Dean of Agriculture Faculty



Soil correlation by Mr. As'ari Hassan (DOA)

CHAT WITH OUR SOIL EXPERT- *Prof. Dr. Shamsuddin Jusop*

What interest you to study soil science?

I read geology during my undergraduate days at UM. So, when I got employment at UPM, naturally soil science became my choice of subject to promote my career.

Who would be the best soil science mentor in your experience?

Dr Eddy Tessens, a Belgian, who once worked with me at UPM in late 1970s. He was a brilliant soil scientist who proved the generation of permanent positive charge in soils by isomorphic substitution of Fe by Ti in oxide of Fe, especially in Oxisols. We together wrote a book on mineralogy and charge properties of Malaysian soils published by UPM Press in 1983.

What do you find most exciting about soil science?

More than 80% of soil science is related to agriculture. We need agriculture for our existence - to get food and fiber. As long as we live, we need food. Soil science plays an important role in food production.

How would you stimulate the younger generation to study soil science?

Tell our young to love soils. Soil is life. If soils on the earth is dead, we are dead. We need soil when we are alive and we need soil when we are dead. For all you know, we come from soils and we go back into soils. Tell our young to study soils and write papers on soil science and talk about them in conferences and forums. Write books on soil science to educate the public about soils. I tell you what? It is never too late to chase a dream!

What is the future of soil science in your perspective?

For sure, it is good. As long as human occupy the earth surface, we need soils.

What is your contribution to MSSS?

I love MSSS, being a member since 1973. I am an ordinary member. At my age, it is cheaper to be one. I speak eloquently at MSSS conferences. I was once its President. I get myself involved actively in MSSS functions and activities.



Three of my PhD students at the UPM convocation in 2000. Left to right - Prof Dian Fiantis (Indonesia), Prof Renato Auxtero (Philippines), Prof Shamsuddin Jusop (FASc) and Dr Somjate Pratummintra (Thailand)

SOIL FUN RUN 2015

SOIL



Fun Run '15

**Date: 31 Oct 2015 (Sat)
Time: 7.00 am
Venue: Bukit Ekspo,
UPM Serdang**

In conjunction with the International Year of Soil 2015, Malaysian Society of Soil Science (MSSS) supported by the Department of Agriculture (DoA) and Universiti Putra Malaysia (UPM) will organize a “fun run” as one of the event to commemorate the year. This fun run will incorporate games and education throughout the run. The run will start at Bukit Ekspo and end at the Faculty of Agriculture. The run

will involve exciting activities along the **5 km route**, such as **soil identification, soil play and other soil fun games** and participants will be exposed to soil diversity and their properties. *Come join us!*



- ★ Dr. Qurban Ali Panhwar (UPM) - 0958
- ★ Mr. Sunny Goh Eng Giap (UMT) - 0959
- ★ Mr. Frankie Lanying (DOA) - 0960
- ★ Mr. Kevin Muyang Tawie Anak Sulok (MPB) - 0961
- ★ Mr. Tyson Bayak Tubang Oleah - 0962
- ★ Mr. Lawrance Ling Qien Guan- 0963
- ★ Ms. Intan Nadhirah Masri (MARDI) - 0964
- ★ Ms. Noor Haslizawati Abu Bakar (MARDI) - 0965
- ★ Ms. Dayang Safinah Nayan (MARDI) - 0966
- ★ Dr. Laila Naher (UMK) - 0967
- ★ Mr. Yap Chin Ann (0968)
- ★ Dr. Irshad Ul Haq Bhat (0969)

Membership is open to all professionals and graduate students, within and outside Malaysia. Please visit our website <http://msss.com.my/apply.htm>.
FEES : RM50.00 per year for ordinary membership, or RM400.00 for life membership



MJSS Volume 18 (December 2014) is out!

MJSS - CALL FOR PAPERS



The Malaysian Journal of Soil Science (MJSS) is a scientific journal published by the Malaysian Society of Soil Science. It contains research papers in English on matters related to soil and soil-plant interactions. The journal welcomes original research works not previously or simultaneously published in any other scientific or technical journal from MSSS members as well as other scientists in Malaysia and abroad. The aim of the journal is to promote the development of soil science

in Malaysia, other tropical and subtropical regions. MJSS is a peer-reviewed, fully open access journal, is now indexed by Scopus and published annually. Instruction for authors and other details are available on our website <http://www.msss.com.my/journals/instruct.php>



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Malaysian Society of Soil Science**



Announcements!

- **8th SUITMA**, Mexico City, 20- 25 Sept
- **ESAFSF 2015**, Nanjing, China, 18-21 Sept
- **ICMSM 2015**, Penang, Malaysia, 7-10 Dec
- **CFEPR 2015**, Kuala Lumpur, 21-23 Sept
- **New publication!** Labile Organic Matter—Chemical Compositions, Function, and Significance in Soil and the Environment.



By 2050, 9 billion population of the world will depend on food produced from soil

Contact us

Malaysian Society of Soil Science
Locked bag 254,
43409 UPM Serdang,
Selangor Darul Ehsan
Website: <http://www.msss.com.my/>
E mail: soilsciencemalaysia@gmail.com

